(b) locating query terms in the documents and extracting text surrounding the query terms to form at least one context string;

displaying information regarding the documents, including the at least one context string surrounding one or more of the query terms for each processed document containing the query terms; and

displaying an indication of how close the query terms are to each other in the documents.

REMARKS

Reconsideration of this application, as amended, is respectfully requested.

Initially, the undersigned wishes to express gratitude for the courtesy extended during the telephone interview with Examiners Colbert and Kindred held on December 19, 2001. During the interview, the amendments presented in this response were discussed in detail. Appropriate reference was made to the figures and to portions of the specification to support the changes to the claims. Specifically, the features of the meta search engine of the present invention as shown in Figs. 3 through 8 were described in detail and the claims directed to these features were discussed. A summary of these discussions is described below.

Regarding claim 1, after the query is forwarded to a plurality of third party search engines, the method of the present invention receives and processes in parallel responses from the third party search engines, which identifies documents in response to the query. The processing includes downloading the full text of the documents identified in response to the query and forming at least one context string by extracting text surrounding the query terms. As each document is processed, information regarding the document, such

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as title, etc., and the at least one context string surrounding the query terms is progressively displayed. As was explained during the interview, the information and context string for each processed document shown in Fig. 3 is displayed as soon as the processing for that document is completed. Therefore, while the processing of documents continues, the user can already begin viewing results. Neither the progressive display of the documents or the processing in parallel of the responses from the third party search engines is disclosed in Redfern. Therefore, it is respectfully submitted that claims 1, 16, 46 and 52 are allowable over Redfern.

In addition to discussing the features of amended claim 1, several additional features of the meta search engine of the present invention were discussed during the interview. These additional features will be described below.

Claim 4 is directed to the step of identifying and displaying a list of documents identified in response to the query which do not contain any of the query terms. This feature is shown in Fig. 6. Many search engines, due to the parsing of the query terms and/or because of meta tags, retrieve many documents that actually do not contain any of the search terms. The meta search engine of the present invention provides a separate list of these results so that the user can determine whether any of these documents may or may not be useful.

Claim 5 is directed to the method of clustering documents where the clustering refers to providing a separate result in which documents are grouped by categories and presented to the user in this manner. Clustering is described in detail in the specification on pages 20 through 22. The clustering algorithm of the present invention utilizes an analysis of the full text of each document and the identification of co-occurring phrases and words and conjunctions thereof. Fig. 15 shows the list of categories for the clusters produced by the algorithm of the present invention. Fig. 16 shows the first two cluster summaries from the list

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in Fig. 15. For comparison purposes, clusters were produced by two separate search engines, Husky Search and Alta-vista and these results are shown in Figs. 17, 18 and 19. As can be seen, the clusters produced by the algorithm of the present invention is much more inclusive. New claim 85 depends from claim 5 and is directed to the basic algorithm for producing the clusters. New claim 86 is a new independent claim directed to the clustering feature.

The feature of claim 12 was discussed in which the method of the present invention detects duplicate documents by identifying duplicate context strings. During the interview, the Examiners were directed to Fig. 7 which showed the production of the results in which the documents containing the duplicate context strings are displayed. Therefore, amended claim 12 now includes the limitation that the method detects and displays duplicate documents.

The feature of query expansion as recited in amended claim 14 was also discussed. The feature is disclosed on pages 22 and 23 of the specification. The query expansion terms are shown in Fig. 8. As recited in claim 14, the method displays suggested additional query terms for expanding the query based on terms in the documents identified in response to the query. The meta search engine of the present invention retrieves extra documents containing the exact query terms without any parsing for alternative forms of the query terms. This is contrary to Redfern which performs a complicated parsing procedure prior to the query being forwarded to the search engines. In the method of the present invention, after all the documents have been received, downloaded and processed, a parsing algorithm is used to generate proposed expansion forms of the query terms and then the documents are searched for these alternatives. As shown in Fig. 8, the proposed query expansion terms are displayed with the number of documents containing the terms shown in

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parentheses next to the term. This will allow the user to make an informed decision on any expansion of the query to alternative terms. New independent claim 87 is directed to query expansion. There is no such display of proposed query expansion terms based on terms in the documents disclosed in the cited prior art.

Claim 15 is directed to a feature of re-ranking the documents as shown in Fig. 4. As recited in claim 15, after all responses to the query have been processed, a ranking scheme re-ranks the documents according to the number of and proximity between query terms and redisplays the information regarding the documents according to the ranking. There is no disclosure in Redfern of a re-ranking and redisplay of documents previously displayed.

New claim 80 is directed to the step of transforming the query from a form of a question into a form of an answer prior to forwarding the query to the provider of the third party search engines. This feature, described in the specification, under the heading of "specific expressive forms" beginning on page 23 and continuing through to page 26, is a unique method of transforming a natural language query into a form that will more readily result in relevant documents. By transferring the query "what does Nasdaq stand for" to "Nasdaq stands for" will transfer the query into the form more likely to be found in the documents, and, therefore, result in the documents being retrieved more likely providing the desired answer. New independent claim 88 is directed to this expressive form feature. No such expressive form transformation is disclosed in Redfern.

Claim 81 is directed to the feature of displaying an indication of how close the query terms are in the documents, which is depicted in the figures by the relevancy bar next to the title of each document displayed. The relevancy bar is shown in Figs. 3, 4, and 5. In the

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example of Fig. 3, the longer the bar indicates that the query terms are closer together than documents in which the bar is not as long. New independent claim 89 is directed to this proximity feature. There is no disclosure of a proximity display in the cited prior art.

Claim 84 is directed to a display of summary information such as that shown in Fig. 8. The summary information is separately identified for each search engine. The example of Fig. 8 shows for each search engine, the number of documents retrieved, the number of documents processed and the number of duplicates for each search engine. There is no disclosure in Redfern of a display of such summary information separately identified for each search engine.

As noted above, it is respectfully submitted that amended independent claims 1, 16, 46 and 52 contain allowable subject matter. It is also submitted that several of the features discussed during the interview that are present in dependent claims also individually are directed to features that would be allowable over the cited prior art. As noted above, new independent claims 86-89 have been included. It is submitted that these independent claims also are allowable over the cited prior art.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached pages are captioned "**Version with Markings to Show Changes Made**".

Consideration and entry of this amendment after final is respectfully requested. As stated during the interview, the features discussed herein were all present in the claims

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prior to the final Office Action being issued and, therefore, no new issues have been raised by

this amendment. Therefore, a Notice of Allowance is respectfully solicited.

Respectfully submitted,

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<u>09/113,751</u>

<u>VERSION WITH MARKINGS TO SHOW CHANGES MADE</u>

The claims have been amended as follows:

1. A computer-implemented meta search engine method, comprising the steps of:

forwarding a query to a plurality of third party search engines;

~~parsing the~~ <u>receiving and processing in parallel</u> responses from the third party search engines, <u>said responses identifying documents in response to the query</u> ~~in order to extract~~ ~~information regarding the documents matching the query~~, <u>said processing including the steps of</u>,

<u>(a)</u> downloading the full text of the documents ~~matching~~ <u>identified in response to</u> the query,; <u>and</u>

<u>(b)</u> locating query terms in the documents and extracting text surrounding the query terms <u>to form at least one context string</u>; and

<u>progressively</u> displaying ~~the text~~ <u>information regarding the documents, and the at least one context string</u> surrounding <u>one or more of</u> the query terms <u>for each processed document containing the query terms</u>.

~~2. The method according to Claim 1, further including the step of progressively displaying the~~
~~text surrounding the query terms as the documents are retrieved.~~

4. A method according to Claim 1, further including the step of identifying and ~~filtering pages~~ ~~which no longer contain the query terms~~ <u>displaying a list of documents identified in response to the query which do not contain any of the query terms</u>.

12. A method according to Claim 1, further including the step <u>of</u> ~~of using a more advanced~~ ~~detection of~~ <u>detecting and displaying</u> duplicate documents by identifying duplicate context strings. ~~even when documents may have different headers or footers~~.

14. A method according to Claim 1, further including the step of ~~using context sensitive~~
~~suggestions based on the query entered, e.g. providing suggestions regarding how to search for a~~

~~name when the query contains a single character that could represent an initial~~ displaying suggested additional query terms for expanding the query based on terms in the documents identified in response to the query .

15. A method according to Claim 1, after all responses have been processed, further including the step of using a ~~proximity-based~~ ranking scheme to re-rank documents according to the number of and proximity between query terms, and re-displaying the information regarding the documents according to the ranking.

16. A computer-implemented meta search engine method, comprising the steps of:

    forwarding a query to a third party search engine;

    ~~parsing the~~ receiving and processing in parallel responses from the third party search engines, said responses identifying documents in response to the query, ~~in order to extract information regarding the documents matching the query,~~ said processing including the steps of,

        (a) downloading the full text of the documents ~~matching~~ identified in response to the query; and

        (b) locating query terms in the documents and extracting text surrounding the query terms to form at least one context string; and

    progressively displaying ~~the text~~ information regarding the documents, and the at least one context string surrounding one or more of the query terms for each processed document containing the query terms.

~~17. A method according to Claim 16, further including the step of progressively displaying the text surrounding the query terms as the documents are retrieved.~~

19. A method according to Claim 16, further including the step of identifying and ~~filtering pages which no longer contain the query terms.~~ displaying at list of documents identified in response to the query which do not contain any of the query terms.

26. A method according to Claim 16, further including the step of ~~using a more advanced detection of~~ detecting and displaying duplicate documents by identifying duplicate context ~~even when documents may have different headers or footers~~ strings.

28. A method according to Claim 16, further including the step of ~~using context sensitive suggestions based on the query entered, e.g. providing suggestions regarding how to search for a name when the query contains a single character that could represent an initial~~ displaying suggested additional query terms for expanding the query based on terms in the documents identified in response to the query.

29. A method according to Claim 16, after all responses have been processed further including the step of using a ~~proximity based~~ ranking scheme to re-rank documents according to the number of and proximity between query terms, and re-displaying the information regarding the documents according to the ranking.

46. A computer-implemented meta search engine comprising:
    means for forwarding a query to a plurality of third party search engines;
    means for ~~parsing the~~ receiving and processing in parallel responses from the third party search engines, said responses identifying documents in response to the query ~~in order to extract information regarding the documents matching the query~~ said processing including the steps of:
    (a) means for downloading the full text of the documents ~~matching~~ identified in response to the query, and
    (b) means for locating query terms in the documents and extracting text surrounding the query terms to form at least one context string; and
    means for progressively displaying ~~the text~~ information regarding the documents, and the at least one context string surrounding one or more of the query terms for each processed document containing the query terms.

47. ~~A meta search engine according to Claim 46, further including means for the progressive display of the text surrounding the query terms as the documents are retrieved.~~

49. A meta search engine according to Claim 46, further including means for the identification ~~and filtering of pages which no longer contain the query terms~~ displaying a list of documents identified in response to the query which do not contain any of the query terms.

52. A computer-implemented meta search engine comprising:

means for forwarding a query to a

third party search engine;

means for ~~parsing the~~ receiving and processing in parallel responses from the third party search engine, said responses identifying documents in response to the query ~~in order to extract information regarding the documents matching the query~~, said processing including the steps of,

(a) means for downloading the full text of the documents ~~matching~~ identified in response to the query; and

(b) means for locating query terms in the documents and extracting text surrounding the query terms to form at lest one context string; and

means for progressively displaying information regarding the documents, and the at least one context string ~~the text~~ surrounding one or more of the query terms for each processed document containing the query terms..

~~53. A meta search engine according to Claim 52, further including means for the progressive display of the text surrounding the query terms as the documents are retrieved.~~

55. A meta search engine according to Claim 52, further including means for the identification ~~and filtering of pages which no longer contain the query terms.~~ displaying a list of documents identified in response to the query which do not contain any of the query terms.

~~79. The method of claim 1, wherein the step of processing the responses from the third party search engines is performed in parallel.~~

80. (New) The method of Claim 1, further including the step of transforming the query from a form of a question into a form of an answer prior to forwarding the query to the plurality of third party search engines.

81. (New) The method of Claim 1, wherein the step of progressively displaying includes displaying an indication of how close the query terms are to each other in the documents.

82. (New) The method of Claim 1, after the progressively displaying step, further including the steps:

(a) displaying the information regarding the documents and the at least one context string for a predetermined number of documents ranked using term proximity information;

(b) displaying the information regarding the documents and the at least one context string for documents that which contain less than all the query terms;

(c) displaying the information regarding the documents that contain none of the query terms;

(d) displaying the information regarding the documents and the at least one context string for documents that contain duplicate context strings to documents displayed earlier; and

(e) displaying the information regarding the documents that could not be downloaded.

83. (New) The method of Claim 82, further including the step displaying suggested additional query terms for expanding the query based on terms in the documents identified in response to the query.
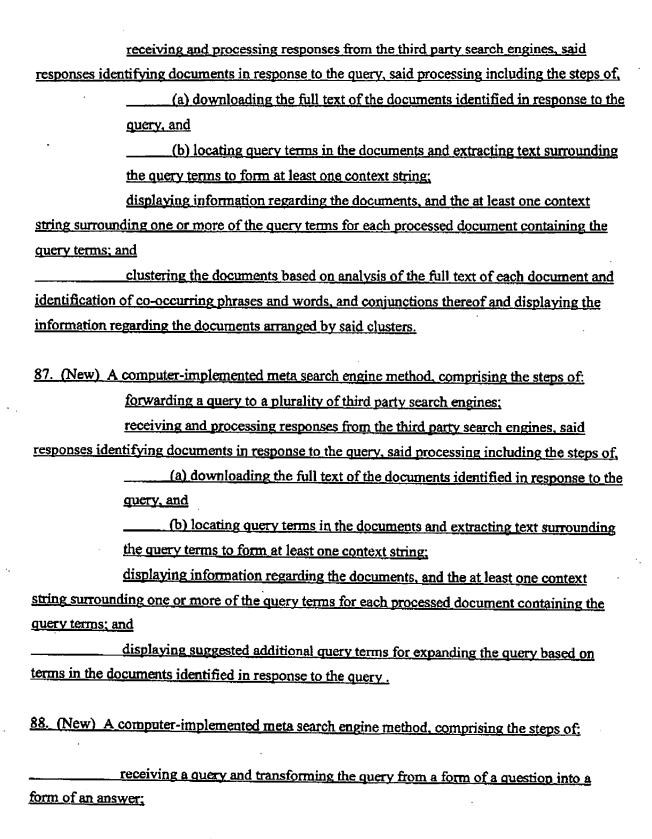
84. (New) The method of Claim 84, further including the step of displaying summary information regarding the documents found and processed, the summary information being separately identified for each search engine.

85. (New) The method of Claim 5, wherein the step of clustering comprises for each processed document the steps of:

(a) for n = 1 to MaximumPhraseLength, for each set of successive n words , if this combination of words has not already appeared in this document, then add the set to a hash table for this document and a hash table for all documents;

(b) for n = MaximumPhraseLength to 1, find the most common phrases of length n, to a maximum of MaxN phrases, which occurred more than MinN times, and add these phrases to the set of clusters;

(c) find the most common combination of two clusters form the previous step, to a maximum of maxC combinations, for which the combination occurred in individual documents at least MinC times;

(d) delete clusters which are identified by phrases which are subset of a phrase identifying another cluster;

(e) merge clusters which contain identical documents; and

(f) display each cluster along with at least one context string form a set of documents for both the query terms and the cluster terms.

86. (New) A computer-implemented meta search engine method, comprising the steps of:
forwarding a query to a plurality of third party search engines;

receiving and processing responses from the third party search engines, said responses identifying documents in response to the query, said processing including the steps of,

(a) downloading the full text of the documents identified in response to the query, and

(b) locating query terms in the documents and extracting text surrounding the query terms to form at least one context string;

displaying information regarding the documents, and the at least one context string surrounding one or more of the query terms for each processed document containing the query terms; and

clustering the documents based on analysis of the full text of each document and identification of co-occurring phrases and words, and conjunctions thereof and displaying the information regarding the documents arranged by said clusters.

87. (New) A computer-implemented meta search engine method, comprising the steps of:

forwarding a query to a plurality of third party search engines;

receiving and processing responses from the third party search engines, said responses identifying documents in response to the query, said processing including the steps of,

(a) downloading the full text of the documents identified in response to the query, and

(b) locating query terms in the documents and extracting text surrounding the query terms to form at least one context string;

displaying information regarding the documents, and the at least one context string surrounding one or more of the query terms for each processed document containing the query terms; and

displaying suggested additional query terms for expanding the query based on terms in the documents identified in response to the query.

88. (New) A computer-implemented meta search engine method, comprising the steps of:

receiving a query and transforming the query from a form of a question into a form of an answer;

forwarding the transformed query to a plurality of third party search engines;

receiving and processing responses from the third party search engines, said responses identifying documents in response to the query, said processing including the steps of,

(a) downloading the full text of the documents identified in response to the query, and

(b) locating query terms in the documents and extracting text surrounding the query terms to form at least one context string; and

displaying information regarding the documents, and the at least one context string surrounding one or more of the query terms for each processed document containing the query terms.

89. (New) A computer-implemented meta search engine method, comprising the steps of:

forwarding a query to a plurality of third party search engines;

receiving and processing responses from the third party search engines, said responses identifying documents in response to the query, said processing including the steps of,

(a) downloading the full text of the documents identified in response to the query, and

(b) locating query terms in the documents and extracting text surrounding the query terms to form at least one context string;

displaying information regarding the documents, including the at least one context string surrounding one or more of the query terms for each processed document containing the query terms; and

displaying an indication of how close the query terms are to each other in the documents.